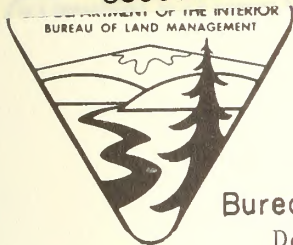


BLM LIBRARY



88006507



TECHNICAL NOTE

T-N-241

Filing Code 6601

Date Issued February 1974

Bureau of Land Management U.S. DEPARTMENT OF THE INTERIOR
Denver Service Center, Bldg. 50, DFC-Denver, Colorado 80225

HABITAT MANAGEMENT SERIES FOR UNIQUE OR ENDANGERED SPECIES

by Carol Snow, Research Biologist
Conservation Library
Denver Public Library

Report No. 9

Gyrfalcon
Falco rusticolus L.



QL
84.2
.L35
no. 241

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

Information contained herein may be reprinted without
permission; credit would be appreciated.

F 1183534

ID: 846006507

QL
84.2
.L35
no. 241

FOREWORD

This Technical Note series on wildlife is designed to provide a literature review and summary of current knowledge pertaining to endangered and other wildlife species occurring on public lands. We in the Bureau of Land Management have recognized the need for basic wildlife information in order to do an effective job in land-use planning. Sound planning must identify the negative aspects as well as the positive benefits of any proposed land management decision or program. It is our hope, too, that this series will also prove useful to others--be they land managers, students, researchers or interested citizens.

Ernst Berklund

Director
Bureau of Land Management
Department of the Interior

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

TABLE OF CONTENTS

	Page
Species Description	1
Distribution	3
Status and Population Trend	5
Life History	5
Breeding Season	5
Fledging Success	6
Hunting Methods	6
Food Habits	7
Habitat Requirements	8
Protective Measures Instituted	9
Legal or Regulatory	9
Captive Rearing	9
Habitat Protection and Improvement	10
•Reintroduction	10
Ongoing Research Projects	10
Recommended Species and Habitat Mgt. Techniques . .	10
Photographic Material Available	10
Authorities	10
Governmental, Private and Internat'l Organizations Actively Concerned with This Species' Welfare . .	11
Gyrfalcons and Falconry	12
Literature Cited.	13

Introduction

The objective of this report is to provide BLM personnel with the latest and most up-to-date information on rare or endangered species occurring on the public domain. This will provide a tool for improved understanding of the interrelationships between the species and its environment and encourage an end product of enlightened land management which will fully consider the species' welfare in all management decisions.

1. Species Description

The gyrfalcon, Falco rusticolus L., is the Arctic counterpart of the "desert falcons" which are found in open land areas such as prairies, deserts and steppes. This group includes the prairie falcon, Falco mexicanus. The gyrfalcon is the largest falcon in North America, ranging from approximately 20 to 25 inches in length compared to the peregrine falcon (Falco peregrinus), which is 17 to 20 inches in length.

More than 40 races of gyrfalcons have been described because of the confusion resulting from extremely variable plumage coloration and patterning in this species. Vaurie (1961) reviewed the taxonomy of the gyrfalcon and concluded that subspecies designations were inaccurate and unnecessary.

Gyrfalcon coloration ranges from nearly white to very dark gray, almost slate-colored. Most birds are gray. Some gyrfalcons also have shades of brown and buff in their feathers and worn plumage may be a tan-brown color. Gyrfalcons may or may not have moustachial stripes and barred tails. Different color phases apparently breed readily with each other. The greatest color uniformity in a population occurs in Greenland, which has a high proportion of white birds (Olendorff, 1964; White, 1973; Walker, 1973).

Three basic color phases have been described. (See Figure 1.) Adult gyrfalcons in the gray phase are gray to gray-brown on the upper parts of the head, body, wings and tail. These feathers are narrowly edged with grayish white to pale buffy white and barred with the same color. The forehead, throat and sides of the neck are whitish, and there is often but not always a distinct moustachial stripe. The underparts are white and may have a wash of pale buff or cream. The chin and throat are usually unspotted, but there is streaking on the chest which may become conspicuous spots of dark grayish-brown on the belly. The sides and the flanks are heavily barred. The tail feathers are crossed by ten to twelve whitish or grayish bands about equal in width to the dark spaces in between. Beak color is bluish-horn. The cere, legs and feet are bright yellow and the eyes are dark brown.

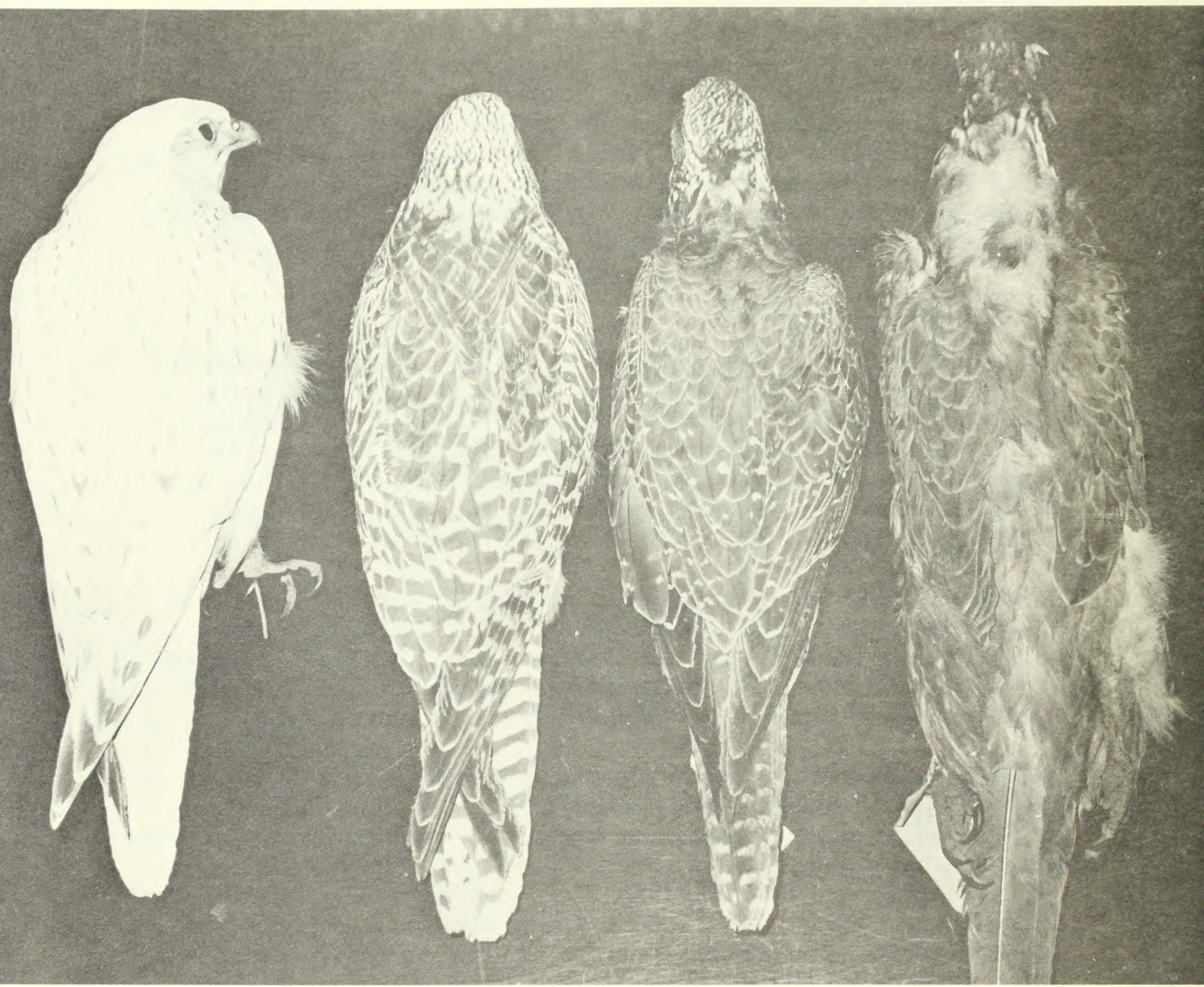


Figure 1. The three main color phases of the gyrfalcon (Falco rusticolus). From left to right: white phase, juvenile gray phase, adult gray phase and dark gray phase. (Photo courtesy of William Burnham).

Juvenile gray phase birds are similarly colored, but they have more white on their heads and broader light edges on the back feathers. The underparts are white and heavily streaked with gray-brown. The cere, legs and feet are bluish to greenish-gray.

The dark gray phase is similar to the gray phase bird, but is dark grayish-brown dorsally and heavily streaked and barred below. The underwing coverts are black and the slate-gray wings and tail are indistinctly mottled with white. Dark gray phase juveniles have dark gray heads and are dark with white streaking on the underparts (Grossman and Hamlet, 1964; Todd and Friedmann, 1947; Gabrielson and Lincoln, 1959).

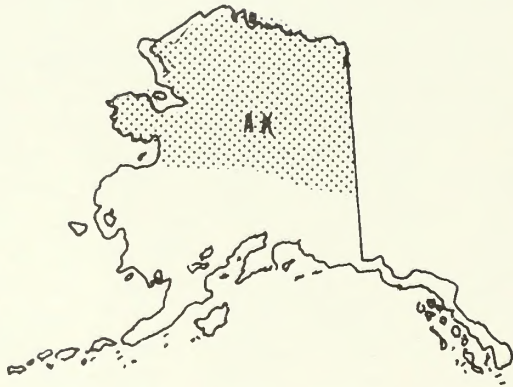
White phase gyrfalcons are sometimes separated into bar-tailed and plain-tailed varieties. The head, body, wings and tail are white, usually with a light creamy tinge. Black feather shaft stripes on the top of the head broaden into tear-shaped spots on the nape of the neck. The back is heavily marked with spots or spotty barring of a cinnamon-brown to black coloring. In the bar-tailed phase, the wings and tail feathers are broadly barred with similar coloring. In the plain-tailed phase, the tail feathers are immaculate white. Juveniles are similarly marked but are more spotted and streaked (Grossman and Hamlet, 1964; Todd and Friedmann, 1947; Gabrielson and Lincoln, 1959).

Very young gyrfalcons of all color phases are covered with creamy tinged white down. The eye is blackish and the feet and cere are pale yellow (Brown and Amadon, 1968).

2. Distribution

The gyrfalcon has a circumpolar distribution (see distribution map). In the United States, it is resident in Alaska. It lives and breeds throughout the foothills of the Brooks Range, DeLong Mountains, Baird Mountains, Bering Sea Coast, and the Seward Peninsula. It is also found in the high uplands between the Yukon and the Tanana River, the foothills of the Alaska Range, the hills between Kuskokwim River and Bristol Bay, parts of Alaska Peninsula and some of the larger islands in the Aleutian Chain, and in the Chugach Mountains (Roseneau, 1972).

In the winter, gyrfalcons, particularly juveniles, may occasionally be observed in Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, southern Ontario, Wisconsin, Minnesota, Montana, southern British Columbia, North Dakota, Oregon, Maine, New Hampshire, South Dakota, Washington, Michigan, Nebraska and Kansas (Todd and Friedmann, 1947; Bent, 1938; Gabrielson and Lincoln, 1959; Rathbun, 1920; Jewett, 1919, 1949; Sloanaker, 1926, 1927).



Approximate distribution of the Gyr Falcon Falco rusticolus,
in the United States.

3. Status and Population Trend

In 1960, Cade estimated the entire population of gyrfalcons in Alaska to be between 200 and 300 pairs (Cade, 1960). Roseneau (1972) determined a gyrfalcon population during years with abundant prey to be 70 pairs in a 17,000-square-mile study area located in the Seward Peninsula. He feels that the total population for Alaska may exceed Cade's estimate in years when prey densities are high. Much of interior Alaska will have to be studied before a more accurate population estimate can be made.

4. Life History

Gyrfalcons are one of the earliest nesting species of birds in Alaska. Two to seven eggs are laid from mid-April to early May. In Cade's study, the average clutch size was 3.8. Three to four eggs were laid in years of high prey density. Two to three eggs were laid during years of low prey density (Cade, 1960). The incubation period is presumed to be 28 to 29 days long, but this apparently has not been actually determined (Walker, 1973). Little is reported in the literature about gyrfalcon courtship, but it is probably similar to that of other falcons (Brown and Amadon, 1968; Cade, 1960; Bent, 1938; White and Cade, 1971).

Gyrfalcons are infrequently aggressive towards human intruders at their eyries, but may be quite aggressive towards other raptors at times. Roseneau (1972) recorded observations on interactions between gyrfalcons and other large cliff nesting species. Gyrfalcons and ravens (Corvus corax) nested within several hundred yards of each other, often without conflict. However, he saw a number of aerial battles between the two species which were initiated by the gyrfalcons. Conflicts between gyrfalcons and American rough-legged hawks (Buteo lagopus) were frequent. No conflicts were observed between gyrfalcons and golden eagles (Aquila chrysaetos), although such interactions have been seen on the Colville River and in the Brooks Range, where gyrfalcons are quite aggressive towards golden eagles (White, 1973).

The female apparently does most of the incubating while the male does most of the hunting, but this is not clear cut (Walker, 1973). When young gyrfalcons are very small, the female stays on or near the nest and accepts prey from the male which she then feeds to the young. When the young birds are about two weeks old, the female spends nearly as much time as the male obtaining food for them (White, 1973). Gyrfalcons fledge at the age of approximately seven weeks and are

dependent on the adults for another two to six weeks. The fledging of gyrfalcons coincides with the fledging of some avian prey species, which is an advantage for the inexperienced gyrfalcons when they begin hunting for themselves (Cade, 1960; Brown and Amadon, 1968; Walker, 1973).

The entire reproductive cycle of gyrfalcons is two to three weeks longer than for peregrines because of the slower development of young gyrfalcons. The gyrfalcon reproductive cycle begins about a month earlier than the peregrine cycle, although there is some year to year variation in the timing of the gyrfalcon cycle (Cade, 1960; Brown and Amadon, 1968).

In Cade's study, an average of 2.4 gyrfalcons fledged per eyrie. During a time that there were large numbers of ptarmigan, an average of 3 young per eyrie fledged. In a year that the numbers of ptarmigan were declining, 2.2 young per eyrie fledged. When ptarmigan numbers were greatly reduced, productivity was reduced to 1.3 young per eyrie. During the worst of a five-year period when ptarmigan numbers were low, no gyrfalcons bred in this part of the Colville (Cade, 1960).

Starvation may be a primary cause of mortality during years when the food supply is inadequate. If a pair of gyrfalcons successfully hatches its eggs, most young will be raised to flying stage if enough food is available (Cade, 1960).

Many species of raptors are being monitored for the possible influence of chemical contamination on their reproductive success. Studies by Anderson and Hickey (1972) and Cade et al (1971) and data provided by Walker (1973) indicate that, at this time, the reproductive success of gyrfalcons is not being affected by pesticide residues, which have accumulated at low levels.

The hunting methods of gyrfalcons can be categorized into three types: searching high over the terrain; searching and flying low, about two meters or less above the ground; and flying low and using temporary perches (White and Weeden, 1966; Bengtson, 1971).

A gyrfalcon flying 500 feet and higher above the ground is difficult to see, especially when it is flying in a direction away from the sun. At these higher altitudes, it usually soars in spirals without gaining or losing much altitude and occasionally flaps its wings.

Bengtson (1971) never observed a gyrfalcon strike its prey from a height of more than two meters above the ground. He concluded that gyrfalcons commonly hunt low over the ground or water and try to surprise the prey. If a surprise attack fails, gyrfalcons pursue their prey with great persistence (Cade, 1960; White and Weeden, 1966; Wayre and Jolly, 1958).

When a gyrfalcon is hunting 20 to 60 feet above the ground, flight is rapid and direct. In suitable terrain, the bird searches low over a ridge top, flies directly across an intervening valley and begins to hunt on the next ridge. It often lands on rocks, knolls or small trees. When stooping from a fairly high pitch, the gyrfalcon hits its prey from behind and slightly above, striking and holding onto its quarry (White and Weeden, 1966).

Most prey that gyrfalcons consume are resident birds and mammals. Willow ptarmigan (Lagopus lagopus) and rock ptarmigan (Lagopus mutus) are two of the most important prey species and in some areas may be 89% of all summer food by weight (Brown and Amadon, 1968; Roseneau, 1972). During the winter, ptarmigan are essentially the only prey available. Small mammals, particularly the Arctic ground squirrel (Spermophilus undulatus) are also important, particularly when ptarmigan numbers are low. Lemmings and microtine rodents are also eaten and indirectly important because they attract large numbers of rodent-eating birds utilized by gyrfalcons as food (Roseneau, 1972).

Gyrfalcons are opportunistic and capable of taking a wide range of different sized prey. Although they tend to consume more ptarmigan than any other species, they are capable of shifting to other food sources when ptarmigan become scarce. However, they exhibit a tendency to become "fixed" to a particular species of prey. Gyrfalcons nesting along seacoasts utilize alcids, larids and anatids to a greater degree than gyrfalcons nesting inland. Species taken include several species of gulls, sandpipers, teal, mergansers, snipe, phalarope, terns, scaup, plovers and jaegers (White and Springer, 1965; Cade, 1960; Roseneau, 1972).

Dietary differences between pairs of gyrfalcons in the same population have been observed. These differences reflect the preferences of the pair and the local abundance of prey species, resulting in a considerable range in possible gyrfalcon diets. It is unwise to presume that all gyrfalcons in all areas have identical diets (Roseneau, 1972).

Remains of avian kills by gyrfalcons typically consist of wings with associated parts and occasionally a shoulder girdle. Only one wing may be left and sometimes heads are found. The large bones are usually torn off the joints. Sometimes the sternum and the coracoid bones are broken and partly eaten (Dementiev and Gortchakovskaya, 1945; Bengtson, 1971).

If the assumption is made that a pair of gyrfalcons and their young are eating only ptarmigan, around 200 ptarmigan are necessary to support these birds from May to August (Cade, 1960). Ptarmigan appear to be a preferred prey even in years of small populations, but where other prey are available, gyrfalcons will utilize larger numbers of the other species.

Where gyrfalcons are heavily dependent on ptarmigan populations, such as in Iceland, the numbers of gyrfalcons fluctuate with the numbers of ptarmigan. During the years when ptarmigan are scarce, many gyrfalcons do not nest. A recent study has indicated that ptarmigan population fluctuations are not affected by gyrfalcon populations, even in a situation where the gyrfalcon is the exclusive predator (Gudmundsson, 1972).

5. Habitat Requirements

Gyrfalcon habitat is found primarily in treeless Arctic and alpine terrain at low elevations. It frequently nests above 2000 feet, but it is unlikely that it nests above 4000 feet, since its major prey item is not found above this elevation.

A cliff or bluff is the most important physical feature in gyrfalcon habitat. The distribution of gyrfalcons is related to the presence of cliffs, bluffs and rock outcrops of suitable size (White and Cade, 1971). In his study in the Seward Peninsula, Roseneau (1972) found that gyrfalcons are present in areas characterized by many rock outcroppings.

Gyrfalcons occupy sea cliffs, river bluffs, and isolated upland cliffs. They frequently utilize old raven stick nests. A typical gyrfalcon nest is located on a ledge or platform protected from snow accumulation by an overhanging projection of rock (Cade, 1960; White and Cade, 1971).

Cade (1960) located 21 gyrfalcon eyries in his study. Eleven of these were on shale formations and 10 were on sandstone or conglomerate cliffs. Roseneau (1972) found most gyrfalcon eyries in the Seward Peninsula on metamorphic schist and limestone, which is characteristic of that area.

Cade (1960) found that for 21 eyries, the average height of the nest site was 95 feet (25 to 300 feet); average distance below the brink of the cliff was 44 feet (0 to 200 feet) and the distance above the base of the vertical face averaged 50 feet (6 to 200 feet). Seventeen nests were located on ledges of precipitous cliffs, three were in potholes and one was located on an atypical site on a low slope.

Gyrfalcons are on their nesting sites very early and in the southward extent of their range may use the eyrie as a winter roost. Remains of ptarmigan in winter plumage are often found near the eyries. Nest sites are also usually marked by large accumulations of excrement and remains of prey (Cade, 1960; White and Cade, 1971; Gabrielson and Lincoln, 1959).

Most nesting cliffs have at least one and often two or more alternate nest sites which apparently are readily used by breeding gyrfalcons. Nesting cliff tenacity is low on the Seward Peninsula, where nesting sites are abundant. It is likely that "cliff-shifting," the utilization of different cliffs by the same pair of gyrfalcons, is common. The degree to which this phenomenon occurs is probably influenced by the abundance of suitable nesting sites, prey densities and the number of gyrfalcons and other species of raptors in an area (Cade, 1960; Roseneau, 1972).

6. Protective Measures Instituted

a. Legal or Regulatory

1. The gyrfalcon is included in the treaty which was signed with Mexico in March, 1972, bringing birds of prey under international protection.
2. A permit is required from the Alaska Game and Fish Department to take a gyrfalcon out of the wild.

b. Captive Rearing

1. Breeding projects are in progress at the Cornell Laboratory of Ornithology under the direction of Dr. Tom Cade, the Canadian Wildlife Service under the direction of Richard Fyfe, and the University of Alaska under the direction of Dr. L. G. Swartz and W. Walker. Eggs were produced by gyrfalcons in the Cornell breeding project (Walker, 1973; White, 1973).

c. Habitat Protection and Improvement

1. The Bureau of Land Management in Alaska is requiring the relocation of gravel digging operations and associated oil pipeline development to minimize disturbance in areas with known gyrfalcon eyries.

d. Reintroduction

1. As the gyrfalcon presently has not suffered any population decline, no reintroduction efforts are needed.

7. Ongoing Research Projects

Studies are being continued at the University of Alaska under the supervision of Dr. L. G. Swartz. These studies include an assessment of chemical pollutants in gyrfalcons and their prey species, a five-year population study and investigations into various aspects of gyrfalcon breeding biology (Walker, 1973).

8. Recommended Species and Habitat Management Techniques

Alaska is being subjected to increased development. In the past, the remoteness of the state has acted to protect gyrfalcons from human interference. More roads are being built and exploration has increased so that the degree of remoteness and the protection it has offered is decreasing. Care should be taken to minimize the impact of development and other human activities on gyrfalcons and the other raptorial species in Alaska (Swartz, pers. comm.; Walker, 1973).

9. Photographic Material Available

Dr. William Mattox, 307 Blandford Ave., Worthington, Ohio, 43085, has photographs of the various color phases of gyrfalcons available for use.

10. Authorities

1. Dr. Clayton M. White
Department of Zoology
575 Widtsoe Building
Brigham Young University
Provo, Utah 84601

2. Dr. Tom Cade
Ecology and Systematics
Building 6, Langmuir
Cornell University
Ithaca, New York 14850
3. Wayman Walker
David G. Roseneau
College of Biological Sciences and Renewable Resources
Biology/Bunnell Building
University of Alaska
Fairbanks, Alaska 99701

11. Governmental, Private and International Organizations
Actively Concerned With This Species' Welfare

- A. 1. National Audubon Society
950 Third Avenue
New York, New York 10022
2. The major objective of the National Audubon Society is to advance public understanding of the value and need for conservation of our wildlife, its habitat and all natural resources and the relationship of wise use and intelligent treatment to human progress.
3. Alexander Sprunt, IV, Research Director
4. National Audubon has a series of leaflets and charts on birds of prey and has concentrated its efforts for raptors in the area of education and protective legislation.
- B. 1. Raptor Research Foundation, Inc.
c/o Department of Biology
University of South Dakota
Vermillion, South Dakota 57069
2. The Raptor Research Foundation is a non-profit organization whose purpose is to stimulate, coordinate, direct and conduct research in the biology and management of birds of prey, and to promote a better public understanding and appreciation of the values of these birds. A major activity is the publication of Raptor Research, which serves to convey information contributed by researchers on birds of prey.
3. Dr. Byron E. Harrell

12. Gyrfalcons and Falconry

Frederick II said that "gyrfalcon" is a corruption of the Latin word "hierofalco," which means "sacred falcon." This falcon is capable of bringing down birds as large as swans and has always been the most prized hunting hawk. With the declining numbers of peregrine falcons available, falconers will probably give increased attention and demand to taking gyrfalcons into captivity to hunt as trained birds. Determinations of population levels which must be maintained for a sustained harvest of gyrfalcons have yet to be made (Cade, 1968).

Swartz (pers. comm.) has indicated that legal procedures for falconers to obtain gyrfalcons are often difficult and that frequently applicants are denied permits. He feels that the Alaskan gyrfalcon population can tolerate the removal of some individuals. There may be some increase in illegal taking of gyrfalcons as a consequence of the legal situation, but since many areas of Alaska are extremely remote, it is unlikely that this activity will have a serious impact on the total population. However, since this activity does exist, discretion should be used in revealing eyrie locations.

LITERATURE CITED

- American Ornithologists Union. 1957. The A.O.U. Checklist of North American Birds. Lord Baltimore Press, Inc., Baltimore, Maryland, p. 117-118.
- Anderson, Daniel W. and J. J. Hickey. 1972. Eggshell changes in certain North American birds. In: Proceedings of the XVth International Ornithological Congress. Edited by K. H. Voous. E. J. Brill, Leiden, Netherlands, p. 514-540.
- Bent, Arthur C. 1938. Life Histories of North American Birds of Prey. Part 2. Order Falconiformes and Strigiformes. Smithsonian Institution, U. S. National Museum, Bulletin 170, p. 1-18.
- Bond, R. M. 1949. Characteristics of the gyrfalcon from the Bering Sea area. Condor 51(5):228-229.
- Brown, Leslie and Dean Amadon. 1968. Eagles, Hawks and Falcons of the World. Vol. 2. McGraw-Hill, New York, p. 828-829, 832-833, 843-844, 846-847.
- Cade, Tom J. 1960. Ecology of the peregrine and gyrfalcon populations in Alaska. Univ. of Calif. Publications in Zoology 63:151-290.
- _____. 1968. The gyrfalcon and falconry. The Living Bird 7:237-240.
- _____, Jeffrey L. Lincer, Clayton M. White, David G. Roseneau and L. G. Swartz. 1971. DDE residues and eggshell changes in Alaskan falcons and hawks. Science 172: 955-957.
- Dementiev, G. P. and N. N. Gortchakovskaya. 1945. On the biology of the Norwegian gyrfalcon. Ibis 87:559-565.
- Gabrielson, Ira N. and Frederick C. Lincoln. 1959. The Birds of Alaska. Stackpole Co., Harrisburg, Pa. for the Wildlife Management Institute, p. 279-283.
- Grossman, Mary Louise and John Hamlet. 1964. Birds of Prey of the World. Clarkson N. Potter, Inc., Publisher, New York, p. 389-390.
- Gudmundsson, F. 1972. The predator-prey relationship of the gyrfalcon (Falco rusticolus) and the rock ptarmigan (Lagopus mutus) in Iceland. In: Proceedings of the XVth International Ornithological Congress. Edited by K. H. Voous. E. J. Brill, Leiden, Netherlands, p. 649.

- Jewett, Stanley G. 1919. Gray gyrfalcon taken in Oregon.
Condor 21(3):123.
- _____. 1949. Gyrfalcon taken in California. Condor
51(5):233.
- Olendorff, Richard R. 1964. Classification of the gyrfalcon.
North American Falconers Assoc. Jour. 3(1):31-33.
- Rathbun, S. F. 1920. White gyrfalcon in Montana. Auk 37(1):
132.
- Roseneau, David G. 1972. Summer distribution, numbers and
food habits of the gyrfalcon (Falco rusticolus L.) on the
Seward Peninsula, Alaska. M. S. Thesis, Univ. of Alaska,
College, Alaska, 124 p.
- Sloanaker, J. L. 1926. The gray gyrfalcon in Washington.
Condor 28(4):172.
- _____. 1927. Additional records of the gray gyrfalcon
in Washington. Condor 29(3):158.
- Todd, W. E., Clyde and Herbert Friedmann. 1947. A study of
the gyrfalcons with particular reference to North America.
Wilson Bulletin 59(3):139-150.
- Vaurie, Charles. 1961. Systematic Notes on Palearctic Birds,
No. 45, Falconidae: The Genus Falco (Part 2). American
Museum Novitates, No. 2038, Amer. Mus. of Nat. Hist., New
York, 24 p.
- Walker, Wayman. 1973. Gyrfalcon critique. (Available at
the Conservation Library, Denver Public Library.)
- Wayre, Philip and G. F. Jolly. 1958. Notes on the breeding
of the Iceland gyrfalcon. British Birds 51(8):285-290.
- White, Clayton M. 1973. Gyrfalcon critique. (Available at
the Conservation Library, Denver Public Library.)
- _____. and Heinrich K. Springer. 1965. Notes on the
gyrfalcons in western coastal Alaska. Auk 82(1):104-105.
- _____. and Robert B. Weeden. 1966. Hunting methods of
gyrfalcons and behavior of their prey (ptarmigan).
Condor 68(5):517-519.
- _____. and Tom J. Cade. 1971. Cliff-nesting raptors and
ravens along the Colville River in Arctic Alaska. The
Living Bird 10:107-150.

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

Borrower's C	
QL	
84.2	Gyrffalcon Falco rusti
.L35	
no.241	
Date	Borrower
Loaned	

